

crinologists, and physicians interested in problems related to salt and water balances. Nonmammalian vertebrates, and particularly the amphibians, have provided materials for many investigations fundamental to our present understanding of renal functions, ion transport, and membrane actions of adrenocortical and neurohypophyseal hormones. We can predict that as osmoregulatory physiology and endocrinology become better understood further information derived from nonmammalian vertebrates will contribute substantially toward our fundamental understanding of osmoregulatory mechanisms in man and other mammals.

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## Technology of Holography

**Optical Holography.** ROBERT J. COLLIER, CHRISTOPH B. BURCKHARDT, and LAWRENCE H. LIN. Academic Press, New York, 1971. xviii, 606 pp., illus. \$22.

A subject can be said to have come of age when a significant book about it appears on the market that is readable and usable by people not as expert in the subject as the authors. On that premise, holography has finally reached that estate. (It took 24 years rather than the statutory 21.) *Optical Holography* is a first-rate technical book that the authors and publishers can take pride in—pride that cannot often be honestly felt these days. The authors set the level and the tone of the book in their preface: "Our book is addressed to those who will learn for themselves whether holographic techniques can solve technical problems. Our intention is to provide a ground from which innovation can spring. The reader need have no more than an undergraduate training in science and engineering. An elementary introduction to optics, an acceptance of Maxwell's equations, and a sometime acquaintance with the Fourier transform should suffice."

The fundamentals are reviewed briefly, as is the early history of holography. It is pleasant to see that the significant work of the numerous talented people that came in the era between Gabor and Leith is not ignored and forgotten. That work was extremely important for the future development of holography.

After a short discussion of point source holograms more of the important fundamentals are dealt with in detail—the Fourier transform, propagation and diffraction, and optical systems with spherical lenses. Holography proper starts in chapter 7 with a discussion of light sources and optical techniques followed by an analysis of plane and volume holograms. Separate chapters are devoted to hologram recording materials, pulsed laser holography, and nonlinear recording.

The second half of the book quite correctly is devoted to applications—image forming methods, spatial filters, interferometry, information storage, color holography, computer generated holograms, and so on. All have adequate discussion. Each topic is also very well illustrated with diagrams and photographs.

The authors have taken considerable pains to give credit where credit is due. I am sure that everyone who feels he has made a significant contribution to the subject will find reference to his work. The preface points out, however, that the work is not "a catalog of contributions to holography. We therefore have selected from the substantial amount of literature on holography that which seemed suited to the purpose."

It is hard to find any serious fault with the book—even typographical errors seem few and far between. I do wish, however, that the "coherent transfer function" and the "optical transfer function" had not been plotted on the same graph (figure 6.12, p. 136).

*Optical Holography* will become a standard work on the subject and from my own biased point of view will be an excellent text on which to base a special topic graduate level course.

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## Books Received

**Acquisition and Exploitation of Information in the Field of Food and Agriculture.** Modern Technics and International Cooperation. A congress, Paris, Apr. 1970. Institut National de la Recherche Agronomique, Paris, 1971. 342 pp., illus. Paper, 53.75 F. I.N.R.A. Publication 71-5.

**Advances in Medical Physics.** A symposium, Boston, Aug. 1969. John S. Laughlin and Edward W. Webster, Eds. Second International Conference on Medical Physics, Boston, 1971. xii, 360 pp., illus. \$10.

**Bacteriocine and bacteriocinähnliche**

**Substanzen.** Henning Brandis and Jan Šmarda. Fischer, Jena, Germany, 1971. 408 pp., illus. 98 DM. Infektionskrankheiten und ihre Erreger, Band 11.

**Biochemical Ecology of Water Pollution.** Patrick R. Dugan. Plenum, New York, 1972. x, 160 pp., illus. \$14.50.

**Building and Flying Model Airplanes.** Walter A. Musciano. Funk and Wagnalls, New York, 1972. 192 pp., illus. \$6.95.

**Campanus of Novara and Medieval Planetary Theory.** Theorica Planetarum. Edited with an introduction, English translation, and commentary by Francis S. Benjamin, Jr., and G. J. Toomer. University of Wisconsin Press, Madison, 1971. xvi, 492 pp., illus. \$20. University of Wisconsin Publications in Medieval Science, 16.

**La Chimiothérapie Régionale des Cancers de l'Appareil Digestif.** P. Kissel, M. Bessot, A. Duprez, and G. Mauuary. Masson, Paris, 1971. x, 220 pp., illus. 46 F.

**The Direction of Time.** Hans Reichenbach. Maria Reichenbach, Ed. University of California Press, Berkeley, 1972. xii, 280 pp., illus. Paper, \$4.25. Reprint of the 1956 edition.

**Disc Electrophoresis and Related Techniques of Polyacrylamide Gel Electrophoresis.** H. Rainer Maurer. De Gruyter, New York, ed. 2, 1971. xvi, 226 pp., illus. \$19.75.

**Enzyme Patterns in Fetal, Adult and Neoplastic Rat Tissues.** W. E. Knox. Karger, Basel, 1972 (U.S. distributor, Phiebig, White Plains, N.Y.). xii, 354 pp., illus. \$22.30.

**Ernährungsforschung und Nahrungsmittelproduktion.** A meeting, Zurich, Apr. 1970. J. C. Somogyi, Ed. Karger, Basel, 1971 (U.S. distributor, Phiebig, White Plains, N.Y.). viii, 192 pp., illus. Paper, \$15. Bibliotheca "Nutritio et Dieta," No. 16. Schriftenreihe des Instituts für Ernährungsforschung der Stiftung "Im Grüene," Band 16.

**Freud.** A Biographical Introduction. Penelope Balogh. Scribner, New York, 1972. 144 pp. Cloth, \$6.95; paper, \$2.45.

**Fundamentals of Rock Mechanics.** J. C. Jaeger and N. G. W. Cook. Chapman and Hall, London, 1971 (U.S. distributor, Barnes and Noble, New York). xiv, 516 pp., illus. Cloth, \$19; paper, \$10.50. Science Paperbacks, No. 18. Reprint of the 1969 edition.

**The Genera of North American Plants.** Thomas Nuttall. Hafner, New York, 1971. 2 vols. Vol. 1, [xxxviii], viii, 312 pp. Vol. 2, 254 pp. + index. \$32.50. Classica Botanica Americana, vol. 7. Facsimile of the 1818 edition.

**A History of Electricity and Magnetism.** Herbert W. Meyer. M.I.T. Press, Cambridge, Mass., 1971. xviii, 326 pp., illus. \$10.

**How to Keep Snakes in Captivity.** E. Ross Allen. Patricia E. Pope, Ed. Great Outdoors, St. Petersburg, Fla., 1971. vi, 50 pp., illus. Paper, \$1.

**VIII<sup>e</sup> Symposium Européen sur les Maladies à Virus des Arbres Fruitières.** Bordeaux, France, June 1970. Institut National de la Recherche Agronomique, Paris, 1971. 560 pp., illus. Paper, 65 F. I.N.R.A. Publication 71-2.

**The Legacy of Egypt.** J. R. Harris, Ed. Oxford University Press, New York, ed. 2, 1972. xii, 510 pp. + plates. \$10.

**MTP International Review of Science.** Vol. 6, Transition Metals—Part 2. M. J. Mays, Ed. Butterworths, London; University Park Press, Baltimore, 1972. xii, 442 pp., illus. \$24.50. Inorganic Chemistry Series 1.

**New Directions in Atomic Physics.** Edward U. Condon and Oktay Sinanoğlu, Eds. Yale University Press, New Haven, Conn., 1972. 2 vols. Vol. 1, Theory. xiv, 250 pp., illus. \$12.50. Vol. 2, Experiment. xvi, 164 pp., illus. \$7.50.

**Oceanographic Ships.** Fore and Aft. Stewart B. Nelson. Office of the Oceanographer of the Navy, Alexandria, Va., 1971 (available from the Superintendent of Documents, Washington, D.C.). xviii, 240 pp., illus. \$4.50.

**Perspectives in Quantum Theory.** Essays in Honor of Alfred Landé. Wolfgang Yourgrau and Alwyn van der Merwe, Eds. M.I.T. Press, Cambridge, Mass., 1971. xl, 282 pp., illus. \$17.50.

**Proceedings of the Second International Clean Air Congress.** Washington, D.C., Dec. 1970. H. M. Englund and W. T. Beery, Eds. Academic Press, New York, 1971. xxviii, 1354 pp., illus. \$85.

**Purposive Explanation in Psychology.** Margaret A. Boden. Harvard University Press, Cambridge, Mass., 1972. xii, 408 pp. \$13.50.

**Rabies.** A conference, Tokyo, Oct. 1970. Yasuichi Nagano and Fred M. Davenport, Eds. University Park Press, Baltimore, 1972. x, 406 pp., illus. \$18.50.

**Racism and Psychiatry.** Alexander Thomas and Samuel Sillen. Brunner/Mazel, New York, 1972. xvi, 176 pp. \$7.50.

**Readings in Heredity and Development.** John A. Moore. Oxford University Press, New York, 1972. xvi, 330 pp., illus. Paper, \$3.95.

**Recent Advances in Human Tumor Virology and Immunology.** A symposium. Waro Nakahara, Kusuya Nishioka, Takeshi Hirayama, and Yohei Ito, Eds. University Park Press, Baltimore, 1972. xxii, 590 pp., illus. \$34.50.

**Sailors, Scientists, and Rockets.** Origins of the Navy Rocket Program and of the Naval Ordnance Test Station, Inyokern. Albert B. Christman. Naval History Division, Washington, D.C., 1971 (available from the Superintendent of Documents, Government Printing Office, Washington, D.C.). xxiv, 304 pp., illus. \$4.75. History of the Naval Weapons Center, China Lake, California, vol. 1.

**The Science of War and Peace.** Robin Clarke. McGraw-Hill, New York, 1972. vi, 336 pp., illus. \$10.

**Selected Papers in Biochemistry.** Vol. 1, Bacterial Genetics and Temperate Phage. Jun-ichi Tomizawa, Ed. University Park Press, New York, 1972. xii, 338 pp., illus. \$12.50.

**Society, Stress and Disease.** Vol. 1, The Psychosocial Environment and Psychosomatic Diseases. A symposium, Stockholm, Apr. 1970. Lennart Levi, Ed. Oxford University Press, New York, 1972. xvi, 486 pp., illus. \$29.95. Oxford Medical Publications.

**Systematics of the Neotropical Species of Thelypteris Section Cyclosorus.** Alan R. Smith. University of California Press, Berkeley, 1971. vi, 136 pp. + plates. Paper, \$6.50. University of California Publications in Botany, vol. 59.

**Teaching the History of Chemistry.** A symposium, San Francisco, Apr. 1968. George B. Kauffman, Ed. Akadémiai Kiadó, Budapest, 1971. 222 pp. \$7.80.

**Technology and Social Change.** Wilbert E. Moore, Ed. Quadrangle, Chicago, 1972. viii, 236 pp. Cloth, \$6.95; paper, \$2.45.

**Theoretical Physics.** An Advanced Text. Vol. 2, Statistical Physics, Electromagnetic Processes in Matter. Benjamin G. Levich. Translated from the Russian edition (Moscow, 1969) by S. Subotić. North-Holland, Amsterdam; Wiley, New York, 1971, xx, 646 pp. illus. \$24.95.

**To Live on Earth.** Man and His Environment in Perspective. Sterling Brubaker. Published for Resources for the Future by Johns Hopkins Press, Baltimore, 1972. xvi, 202 pp. \$6.95. A Resources for the Future Study.

**Tomorrow's Math.** Unsolved Problems for the Amateur. C. Stanley Ogilvy. Oxford University Press, New York, ed. 2, 1972. viii, 198 pp., illus. \$7.50.

**Two-Point Boundary Value Problems.** Shooting Methods. Sanford M. Roberts and Jerome S. Shipman. Elsevier, New York, 1972. xiv, 276 pp., illus. \$16.50. Modern Analytic and Computational Methods in Science and Mathematics, No. 31.

**Urban Structures for the Future.** Justus Dahinden. Translated from the German edition (Stuttgart, 1971) by Gerald Onn. Praeger, New York, 1972. iv, 220 pp., illus. \$25.

**Vigilance.** The Problem of Sustained Attention. Carl M. Stroh. Pergamon, New York, 1971. vi, 108 pp., illus. \$8.25. International Series of Monographs in Experimental Psychology, vol. 13.

**Water Pollution Microbiology.** Ralph Mitchell, Ed. Wiley-Interscience, New York, 1972. xii, 416 pp., illus. \$19.50.

**Word Accent in Modern Serbo-Croatian.** Thomas F. Magner and Ladislav Matejka. Pennsylvania State University Press, University Park, 1971. x, 210 pp. \$10.

**The World's Population.** Problems of Growth. Quentin H. Stanford, Ed. Oxford University Press, New York, 1972. xiv, 346 pp., illus. Paper, \$5.95.

## New Journals Received

**Adventures in Experimental Physics.** A Selection of Papers and Personal Discovery Stories Dealing with Innovative, Unconventional and Adventurous Experimentation. Alpha 1972, Jan. 1972. Two issues a year. Editor: Bogdan Maglich (Rutgers University). World Science Communications, P.O. Box 683, Princeton, N.J. Single issue: to individuals, \$6; to institutions, \$12. Subscription to three issues: to students, \$10.80; to other individuals, \$12; to institutions, \$24.

**Archives of Sexual Behavior.** An Interdisciplinary Research Journal. Vol. 1, No. 1, 1971. Quarterly. Editor: Richard Green (University of California School of Medicine, Los Angeles). Plenum Publishing Corp., 227 West 17th St., New York, N.Y. 10011. To individuals, \$16; to institutions, \$26.

**Chemosphere.** Chemistry, Physics and Biology as Focused on Environmental Problems. Vol. 1, No. 1, Jan. 1972. Bimonthly. Editor: T. Stephen (Oxford, England). Pergamon Press, Fairview Park, Elmsford, N.Y. 10523. \$35.

**Higher Education.** An International Journal of Higher Education and Educational Planning. Vol. 1, No. 1, Feb. 1972. Quarterly. Editor: Alec M. Ross (University of Lancaster, England). Elsevier Publishing Co., P.O. Box 211, Amsterdam, The Netherlands. To individuals, \$13.10; to institutions, \$24.

**Journal of Applied Electrochemistry.** Vol. 1, No. 4, Nov. 1971. Quarterly. Editor: D. Inman (Imperial College, London). Chapman and Hall, 11 New Fetter Lane, London EC4. \$24 plus postage.

**Journal of Applied Social Psychology.** Devoted to Applications of Experimental Behavioral Science Research to Problems of Society. Vol. 1, No. 1, Jan.-Mar. 1971. Quarterly. Editor: Siegfried Streufert (Purdue University). Scripta Publishing Corp., 1511 K St. N.W., Washington, D.C. 20005. To members of the American Psychological Association, \$10; to other individuals, \$12; to institutions, \$28.

**Journal of Autism and Childhood Schizophrenia.** Devoted to All Psychoses and Severe Disorders of Behavior in Childhood. Vol. 1, No. 1, Jan.-Mar. 1971. Quarterly. Editor: Leo Kanner (Johns Hopkins University School of Medicine). Scripta Publishing Corp., 1511 K St. N.W., Washington, D.C. 20005. To members of the American Psychological and certain other associations, \$12; to individuals, \$14; to institutions, \$29.

**Journal of Cybernetics.** Transactions of the American Society for Cybernetics. Vol. 1, No. 1, Jan.-Mar. 1971. Quarterly. Editor: Lawrence J. Fogel (Decision Science, Inc., San Diego). Scripta Publishing Corp., 1511 K St. N.W., Washington, D.C. 20005. \$63.

**Kidney International.** Official Journal of the International Society of Nephrology. Vol. 1, No. 1, Jan. 1972. Monthly. Editor: Roscoe R. Robinson (Duke University Medical Center, Durham). Springer-Verlag, 175 Fifth Ave., New York, N.Y. 10010. To individuals, \$33.50; to institutions, \$41.50.

**People Watching.** Curriculum and Techniques for Teaching the Behavioral Sciences. Vol. 1, No. 1, 1971. Semiannually. Editor: Barbara Ellis Long (Clayton, Mo.). Behavioral Publications, 2852 Broadway-Morningside Heights, New York, N.Y. 10025. To individuals, \$5; to institutions, \$10.

**Erratum.** The price of *Conceptual Foundations of Quantum Mechanics*, B. D'Espagnat (Benjamin, Menlo Park, Calif., 1971), was erroneously given in the book list of 4 February. The price of the clothbound edition is \$12.50.